

WHAT IS CLAIMED IS:

1. A multi-element polycrystal, which is a mixed crystal essentially formed of elements A and B having different absorption wavelength ranges and having
5 an average composition represented by $A_{1-x}B_x$, wherein the element B absorbs light over a longer range of wavelength from a shorter to longer wavelength range than the element A;

each of the crystal grains of the mixed crystal
10 has a crystallographic texture composed of a plurality of discrete regions dispersed in a matrix thereof; and the average composition of the matrix is represented by $A_{1-x_1}B_{x_1}$ and the average composition of the discrete regions is represented by $A_{1-x_2}B_{x_2}$ where
15 $x_1 < x < x_2$.

2. The multi-element polycrystal according to claim 1, wherein said $A_{1-x}B_x$ is $Si_{1-x}Ge_x$.

3. The multi-element polycrystal according to claim 2, wherein said X satisfies the relationship:
20 $x \leq 0.1$.

4. The multi-element polycrystal according to claim 2, wherein the crystal grains each have a columnar shape, and the discrete regions are three-dimensionally dispersed in the matrix having strain.

25 5. The multi-element polycrystal according to claim 1, which is used in a solar cell.

6. A multi-element polycrystal, which is a mixed

crystal essentially formed of elements C, D, and E having different absorption wavelength ranges and having an average composition represented by $C_{1-x}D_xE$, wherein

5 each of the crystal grains of the mixed crystal has a crystallographic texture having a plurality of discrete regions dispersed in a matrix thereof; and
the average composition of the matrix is represented by $C_{1-x_1}D_{x_1}E$ and the average composition of
10 the discrete regions is represented by $C_{1-x_2}D_{x_2}E$, where $x_1 < x < x_2$.

7. The multi-element polycrystal according to claim 6, wherein said $C_{1-x}D_xE$ is $Ga_{1-x}In_xAs$.

8. The multi-element polycrystal according to
15 claim 6, which is used in a solar cell.

9. A method of manufacturing a multi-element polycrystal having polycrystalline grains each being formed of a crystallographic texture having discrete regions dispersed in a matrix, comprising the steps of:
20 preparing a melt containing multi elements; and
cooling the melt while controlling a cooling rate and/or a composition of the melt to obtain a multi-element polycrystal.

10. The method according to claim 9, wherein the
25 melt has a composition for a mixed crystal represented by $A_{1-x}B_x$; the element B absorbs light over a longer range of wavelength from a shorter to longer wavelength

range than the element A; each of the polycrystal grains manufactured has a crystallographic texture in which a plurality of discrete regions having an average composition represented by $A_{1-x_2}B_{x_2}$ are dispersed in
5 a matrix thereof having an average composition represented by $A_{1-x}B_x$ where $X_1 < X < X_2$.

11. The method according to claim 10, wherein the element A is Si and the element B is Ge.

12. The method according to claim 9, wherein said
10 X satisfies the relationship: $X \leq 0.1$.

13. The method according to claim 9, wherein the melt has components of a mixed crystal represented by $C_{1-x}D_xE$,

each of the polycrystal grains manufactured has
15 a plurality of discrete regions dispersed in a matrix thereof; and

the average composition of the matrix is represented by $C_{1-x_1}D_{x_1}E$ and the average composition of the discrete regions is represented by $C_{1-x_2}D_{x_2}E$, where
20 $X_1 < X < X_2$.

14. The method according to claim 9, wherein the elements C, D and E are respectively Ga, In and As.

15. A method of manufacturing a solar cell by using a multi-element polycrystal manufactured by the
25 method according to claim 9.